AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions and listings of claims in the application:

1. (Original) A flat plate heat transfer device comprising:

a thermally-conductive flat plate case installed between a heat source and a heat dissipating unit for containing a working fluid which evaporates by absorbing heat from the heat source and condenses by emitting heat at the heat dissipating unit; and

at least one layer of mesh installed in the case and having wires woven alternately,

wherein a vapor passage is formed along the surface of the wires from junctions of the mesh so that the evaporated working fluid is capable of flowing therethrough.

2. (Original) The flat plate heat transfer device according to claim 1, wherein an opening spacing of the mesh [M= (l-Nd)/N] ranges between 0.19mm and 2.0mm,

where N is the mesh number, and d is a diameter (inch) of the wire.

3. (Original) The flat plate heat transfer device according to claim 1, wherein a diameter of the mesh wire ranges between 0.17mm and 0.5mm.

4. (Original) The flat plate heat transfer device according to claim 1, wherein an opening area of the mesh ranges between 0.036 mm^2 and 4. 0mm^2.

5. (Original) The flat plate heat transfer device according to claim 1, wherein the mesh number is not more than 60 on the basis of ASTM specification E-11-95.

6. (Original) The flat plate heat transfer device according to claim 1, wherein the mesh includes: at least one layer of sparse mesh for providing a vapor passage for the evaporated working fluid; and at least one layer of dense mesh having a mesh number relatively greater than that of the sparse mesh and providing a liquid passage for the working fluid.

7. (Original) The flat plate heat transfer device according to claim 6, wherein an opening spacing of the dense mesh [M= (l-Nd)/N] ranges between 0. 019mm and 0. 18mm, where N is the mesh number, and d is a diameter (inch) of the wire.

8. (Original) The flat plate heat transfer device according to claim 6, wherein a diameter of the dense mesh wire ranges between 0.02mm and 0. 16mm.

9. (Original) The flat plate heat transfer device according to claim 6, wherein an opening area of the dense mesh ranges between 0.00036 mm^2 and 0.0324 mm^2.

10. (Original) The flat plate heat transfer device according to claim 6, wherein the number of the sparse mesh is not more than 60 on the basis of ASTM specification E-11-95, while the number of the dense mesh is not more than 80 on the basis of ASTM specification E-11-95.

11. (Original) The flat plate heat transfer device according to claim 6, wherein the dense mesh is arranged near the heat source, while the sparse mesh positioned on the dense mesh is arranged near the heat dissipating unit.

12. (Original) The flat plate heat transfer device according to claim 6, wherein the sparse mesh is interposed between the dense mesh layers.

13. (Original) The flat plate heat transfer device according to claim 12, further comprising at least one layer of additional dense mesh for connecting the dense meshes to at least a part of the sparse mesh between the dense meshes in order to provide a liquid passage for a working fluid.

14. (Original) The flat plate heat transfer device according to claim 6, further comprising at least one layer of middle mesh having the mesh number relatively greater than the sparse mesh and relatively smaller than the dense mesh.

15. (Original) The flat plate heat transfer device according to claim 14, wherein the sparse mesh is interposed between the dense mesh and the middle mesh.

16. (Original) The flat plate heat transfer device according to claim 15, further comprising at least one layer of additional dense mesh for connecting the dense mesh layer and the middle mesh layer to at least a part of the sparse mesh between the dense mesh and the middle mesh in order to provide a passage.

17. (Original) The flat plate heat transfer device according to claim 15, further comprising at least one layer of additional middle mesh for connecting the dense mesh layer and the middle mesh layer to at least a part of the sparse mesh between the dense mesh and the middle mesh in order to provide a passage.

18. (Original) The flat plate heat transfer device according to claim 15, wherein the dense mesh is arranged near the heat source, while the middle mesh is arranged near the heat dissipating unit.

19. (Original) The flat plate heat transfer device according to claim 14, wherein the dense mesh is arranged near the heat source so that the working fluid is evaporated into a vapor by the heat absorbed from the heat source, wherein the sparse mesh is arranged in contact with the dense mesh in order to provide a vapor passage through which the evaporated working fluid flows, and wherein the middle mesh is arranged near the heat dissipating unit and in contact with the sparse mesh in order to emit heat to the heat dissipating unit so that the vapor is condensed.

20. (Original) The flat plate heat transfer device according to claim 19, wherein the middle mesh has a vapor flowing space so that the vapor from the sparse mesh flows therein.

21. (Original) The flat plate heat transfer device according to claim 1, further comprising a wick structure installed in the flat plate case in contact with the mesh,

wherein the wick structure has protrusions on a surface thereof so that the working fluid flows in the wick structure and the working fluid is evaporated using the heat absorbed from the heat source and then transferred to the mesh.

22. (Original) The flat plate heat transfer device according to claim 21, wherein the wick structure is formed by sintered copper, stainless steel, aluminum or nickel powder.

23. (Original) The flat plate heat transfer device according to claim 21, wherein the wick structure is formed by etching polymer, silicon, silica, copper plate, stainless steel, nickel or aluminum plate.

24. (Original) The flat plate heat transfer device according to claim 1, wherein the flat plate case is made using an electrolytic copper film so that a coarse surface becomes an inner side of the case.

25. (Currently amended) The flat plate heat transfer device according to ~~any of~~ claim~~s~~ 1~~ to 24~~, wherein the mesh is made of one selected from the group consisting of metal, polymer and plastic.

26. (Original) The flat plate heat transfer device according to claim 25, wherein the metal is selected from the group consisting of copper, aluminum, stainless steel, molybdenum and their alloys.

27. (Currently amended) The flat plate heat transfer device according to ~~any of~~ claim~~s~~ 1~~ to 24~~, wherein the flat plate case is made of one selected from the group consisting of metal, polymer and plastic.

28. (Original) The flat plate heat transfer device according to claim 27, wherein the metal is selected from the group consisting of copper, aluminum, stainless steel, molybdenum and their alloys.

29. (Currently amended) The flat plate heat transfer device according to ~~any of~~ claims 1 ~~to 24~~, wherein the working fluid is selected from the group consisting of water, ethanol, ammonia, methanol, nitrogen and Freon.

30. (Original) The flat plate heat transfer device according to claim 29, wherein the amount of the working fluid filled in the case is 20-80% of the inner volume of the case.

31. (Currently amended) A ~~The~~ method for making a flat plate heat transfer device comprising the steps of :

forming upper and lower plates of a thermally-conductive flat plate case respectively;

inserting at least one layer of mesh into the case, the mesh having wires woven alternately in order to form a vapor passage through which an evaporated vapor is capable of flowing along the surface of the wires from junctions of the mesh;

making a case by uniting the upper and lower plates;

charging the working fluid into the united case in a vacuum state; and

sealing the case to which the working fluid is charged.

32. (Original) A method for making a flat plate heat transfer device comprising the steps of :

forming upper and lower plates of a thermally-conductive flat plate case respectively;

inserting at least one layer of sparse mesh and at least one layer of dense mesh in the case, the sparse mesh having wires woven alternately and forming a vapor passage through which an evaporated working fluid is capable of flowing along the surface of the wires to

junction of the mesh, the dense mesh having the mesh number relatively greater than the sparse mesh and providing a liquid passage for the working fluid;

making a case by uniting the upper and lower plates;

charging the working fluid into the united case in a vacuum state; and

sealing the case to which the working fluid is charged.

33. (Original) The method for making a flat plate heat transfer device according to claim 31 or 32, wherein the upper and lower plates are united using one selected from the group consisting of brazing, TIG welding, soldering, laser welding, electron beam welding, friction welding, bonding and ultrasonic welding.